

PLANNER & TRACKER FOR RECOVERY ANNUAL TEACHING PLAN (ATP)



MATHEMATICS

GRADE 9 TERM 4

Helping teachers and learners to catch up with learning losses, master new content and acquire skills for the future.

2021



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ABOUT THE PLANNER AND TRACKER

This 2021 Revised Recovery Curriculum and Assessment Planner and Tracker is provided by the National Education Collaboration Trust (NECT) on behalf of the Department of Basic Education (DBE)! We hope that this programme provides you with additional skills, methodologies and content knowledge that you can use to teach your learners more effectively.

WHAT IS NECT?

In 2012 our government launched the National Development Plan (NDP) to eliminate poverty and reduce inequality by the year 2030. Improving education is an important goal in the NDP which states that 90% of learners will pass Maths, Science and languages with at least 50% by 2030. This is an ambitious goal for the DBE to achieve on its own, so the NECT was established in 2015 to assist in improving education.

The NECT has successfully brought together groups of people interested in education so that we can work collaboratively to improve education. These groups include the teacher unions, businesses, religious groups, trusts, foundations and NGOs.

PURPOSE OF PLANNER AND TRACKER

- 1) To mediate the amendments of the trimmed and re-organised 2021 Annual Teaching Plan including School-Based Assessments for Mathematics Grade 9.
- 2) To ensure that meaningful teaching continues during the remaining teaching time as per the school calendar for TERM 4.
- 3) To assist teachers with guided pacing and sequencing of curriculum content and assessment.
- 4) To enable teachers to cover the core skills and knowledge in each grade within the available time.
- 5) To assist teachers with planning for the different forms of assessment.
- 6) To ensure learners are adequately prepared for the subsequent year/s in terms of skills, knowledge, attitudes and values.

PREAMBLE

It must be emphasized that Term 1, term 2 and term 3 content coverage by teachers were impacted by COVID-19. Schools were particularly disrupted by the fact that learners only attended school for 50% of the time and had to endure variations of the rotation system implemented in the schools. Disruption in schools has also meant disruption in different forms of assessment, so it has been hard to fully pin down exactly how much the school closures and transitions in and out of virtual learning have affected students' mathematical learning, but the evidence so far doesn't bode well.

Curriculum coverage in term 1, 2 and 3 must be viewed and implemented in term 4, in the light of some contextual realities that includes the following:

- 1) 2020 was an abnormal year in terms of content coverage. Learners have progressed to a higher grade level without learning all the core skills required for that grade.
- 2) Some learners were not in school for most of 2020 and perhaps part of 2021.
- 3) Mathematics is almost always formally learned at school. Many of our parents are often less well-equipped to help their children with mathematics, at a time when parent support can be even more crucial to student progress. This means that the burden falls directly on our teachers.

- 4) Broader stress and trauma related to the pandemic may worsen existing mathematics anxiety in some students, and mathematics anxiety can exacerbate students' other stress while in class.

Awareness of the above challenges and the consequent assumptions that emerge out of it, is crucial for the implementation of the Revised ATPs emphasizing the recovery of skills not yet mastered in mathematics. This Planner and Tracker is in alignment with the theme of recovery of skills not learnt and covers the following:

- 1) aims to ensure that the critical skills, knowledge, values and attitudes outlined in the ATPs are covered over this time period.
- 2) Curriculum Reorganisation and Trimming for this term purports to reduce the envisaged curriculum to manageable core content , skills, knowledge, attitudes and values to enhance deep and meaningful learning.
- 3) Create opportunities through adjusted ATPs to strengthen pre-knowledge, consolidation, revision, and deeper learning.
- 4) The Planner and Tracker clearly define the core knowledge, skills, attitude to be taught and assessed more specifically to guide and support teachers.
- 5) It also aligns curriculum content and assessment to the available teaching time. Entrench assessment for learning as a Pedagogical Approach to address the learning losses.
- 6) Be used as planning tool to inform instruction during the remaining school terms.

ADJUSTED SCHOOL CALENDAR

SCHOOL TERMS	DATES	TEACHING DAYS
Term 1	15 February - 23 April	50(10 weeks)
Term 2	3 May – 9 July	50(10 weeks)
Term 3	26 July – 01 October	50(10 weeks)
Term 4	11 Oct - 15 Dec	48(10 weeks)

NOTES:

- TEACHING APPROACH in this term assumes that ALL learners are attending schools and the Rotation system may not be implemented meaning that schools may implement normal timetable.
- NECT TERM 4 Planner and Tracker has 48 teaching and learning days, of which 15 days are used for formative and summative Assessment days.
- NECT Term 4 Planner and Tracker focuses on Deep learning through assessment for learning - There is no time for assessment that does not inform the way forward. Teachers should consolidate, revise and remediate through error analysis that leads to skills mastery.

MANAGING TIME ALLOCATED IN THE TRACKER

- The tracker for each term contains details of work to be covered over 60 lessons per term, six per week for ten weeks.
- The CAPS prescribes **four and a half hours** of Mathematics per week in Grade 9.
- Each school will organise its timetable differently, so the programme of lessons is based on work in the Learner's Book and DBE workbook, which should take just about an hour per day to complete. Perhaps, at end of week 30 minutes – will be great if this is also an hour.

- You might have to divide the sessions in the programme slightly differently to accommodate the length of the lessons at your school.
- Depending on the pace at which your learners work, and how much support is needed,
- you might also have to supplement the set activities by using other resources to ensure that the full four and a half hours allocated to teaching Mathematics is used constructively.
- The breakdown of work to be done each week corresponds to the ‘annual teaching plan and programme of assessment’ drawn up by the Provincial Department of Education; however, the tracker gives a more detailed outline of what should be taught each day.
- This tracker is designed for a term that is 10 weeks long.
- In most weeks, one lesson is set aside – at the end of the week - for you to catch up on work not done in the previous four lessons, or to provide remedial support or enrichment.
- The formal teaching programme, the project, some revision, and the term test should be completed by the end of Week 9.

REMEMBER: The teacher should employ group teaching based on principles of differentiation – cater for the needs of every learner by making sure every learner masters the fundamental skills in mathematics. The teacher is also mindful to plan well for effective assessment for learning to inform the remediation and teaching, through the skills mastery approach applied in this Planner and Tracker.

LINKS TO THE DBE WORKBOOKS

The tracker gives links to worksheets in the DBE workbooks relevant to the content described for each day. The worksheets are referred to by worksheet number and page number. These workbooks should be used in conjunction with the Learner’s Book activities. You should review the suggested worksheets before each lesson and decide how best to use them – for teaching, revision, extension or consolidation, in class or for homework.

TEACHING TIME

Since there are **4 and $\frac{1}{2}$** hours allocated for Mathematics per week, the following is a suggested plan for daily lessons.

WEEK: 4 and $\frac{1}{2}$ hours	
Consolidation of Concepts – skills mastery and other	10 min
New Concept – class activity	50 min

CONTENT COVERAGE

TERM 4	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 5 days	Week 6 5 days	Week 7 5 days	Week 8 5 days	Week 9 5 days	Week 10 3 days
Hours per week	3.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	4.5 hrs	3 hrs
Hours per topic	6 hrs.	4.5 hrs.	9 hrs.	9 hrs.	2 hrs.	4.5 hrs.	4.5 hrs.	3 hrs.		
Topics, concepts and skills	GEOMETRY OF 2D SHAPES AND CONSTRUCTIONS Similar and congruent triangles <ul style="list-style-type: none"> Through investigation, establish the minimum conditions for congruent triangles Through investigation, establish the minimum conditions for similar triangles Constructions PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES <ul style="list-style-type: none"> Explore the minimum conditions for two triangles to be congruent Solving problems <ul style="list-style-type: none"> Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties of triangles and quadrilaterals, as well as properties of congruent and similar triangles. 	THEOREM OF PYTHAGORAS <ul style="list-style-type: none"> Use the Theorem of Pythagoras to solve problems involving unknown lengths in geometric figures that contain right-angled triangles 	AREA AND PERIMETER OF 2-D SHAPES <ul style="list-style-type: none"> Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of: <ul style="list-style-type: none"> polygons circles 	SURFACE AREA AND VOLUME OF 3-D OBJECTS <ul style="list-style-type: none"> Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of: <ul style="list-style-type: none"> rectangular prisms triangular prisms cylinders 	REVISION	FORMAL ASSESSMENT TASK TEST Term 3 & 4 work				
CORE QUESTIONS	DID ALL LEARNERS MASTER TERM 1 AND TERM 2 SKILLS?		DID ALL LEARNERS MASTER TERM 3 SKILLS?		NEW CONCEPTS/CONTENT					

RECOMMENDATION	<ol style="list-style-type: none"> Implement at least two Skills Mastery (SM) formative assessments every week. Consolidation of Concepts – 10 minutes – twice a week apply 5-item SM assessments. Teacher – can use SM as individual, pair, small group, or whole class activity. Aim – to consolidate, remediate and work towards mastery. Record – monitor learners who have learning gaps in the REFLECTION section of the Tracker 	NEW CONCEPTS/CONTENT
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WEEKLY PLANNER AND TRACKER

RECOMMENDATION

BASELINE TERM 4: Implement Diagnostic – see exemplar in Planner and Tracker – or any similar diagnostic – Based on term 1, term 2 and term 3 core skills. Teachers are encouraged to use the exemplar, based on what content they have completed. Meaning teachers can select different items in the diagnostic for their purposes.

WHEN: Day 1, allow learners to complete individually and/or work with ability groups based on your classroom context. Day 2 is set aside for remediation purposes.

NUMBER OF ITEMS: Grade 9 = 20 items – depending on your context and ability groups

ITEM BANK: Items can be from previous:

- 1) BASELINE/READINESS assessment, 2) Assessment Resources in this TRACKER or 3) the DBE Item Bank and 4) PREPARATION: Test, Marking Guideline/s, Marksheet and apparatus.

11 – 15 October 2021

Week 1					
Lesson	ATP Content	concepts, skills	DBE workbook	Resources	Date
1		Baseline: (Revision, consolidation of term 1,2 & 3 skills)			
2		Baseline: Remediation – error analysis			
3	GEOMETRY OF 2D SHAPES AND CONSTRUCTIONS Similar and congruent triangles Through investigation, establish the minimum conditions for congruent triangles Through investigation, establish the minimum conditions for similar triangles	Define similarity Find lengths if figures are similar.	Bk 1 No. 51a (pp. 134 & 135)		
4	GEOMETRY OF 2D SHAPES AND CONSTRUCTIONS Similar and congruent triangles Through investigation, establish the minimum conditions for congruent triangles Through investigation, establish the minimum conditions for similar triangles	Define similarity Find lengths if figures are similar. Determining similarity	Bk 1 No. 51b (pp. 136 & 137)		
5	GEOMETRY OF 2D SHAPES AND CONSTRUCTIONS: PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES Explore the minimum conditions for two triangles to be congruent	Define congruency Discuss the cases for congruency	Bk 1 No. 52a (pp. 138 & 139)		

Notes for the teacher.

1. The Baseline Assessment can be administered one-on one or to a group of at least 5 learners at a time – it is an assessment FOR learning.
2. The onus is on the teacher to prepare substantial activities for the rest of the learners while the Baseline Assessment is being administered.
3. Prepare well - study the Baseline Assessment i.e. familiarise yourself with the apparatus and templates that must be used.

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:	What will you change next time? Why?
<ul style="list-style-type: none"> • Define similarity • Find lengths if figures are similar. • Determining similarity in figures • Define congruency • Discuss the cases for congruency 	Struggling Learners Names:
	HOD: _____ Date: _____

18 - 22 October 2021

Week 2					
Lesson	ATP Content	concepts, skills	DBE workbook	Resources	Date
6	GEOMETRY OF 2D SHAPES AND CONSTRUCTIONS: PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES	Draw congruent triangles Prove triangles are congruent	Bk 1 No. 52b (pp. 140 & 141)		

	Explore the minimum conditions for two triangles to be congruent				
7	GEOMETRY OF 2D SHAPES AND COSTRUCTIONS: Solve geometric problems involving unknown sides and angles in triangles and quads, using known properties of triangles and quads, as well as properties of congruent and similar triangles.	Solve geometric problems. Apply theory of congruency	Bk 1 No. 57a (pp. 152 & 153)		
8	GEOMETRY OF 2D SHAPES AND COSTRUCTIONS: Solve geometric problems involving unknown sides and angles in triangles and quads, using known properties of triangles and quads, as well as properties of congruent and similar triangles.	Solve geometric problems. Draw congruent figures on graph paper	Bk 1 No. 57b (pp. 154 & 155)		
9	THEOREM OF PYTHAGORAS Use the Theorem of Pythagoras to solve problems involving unknown lengths in geometric figures that contain right-angled triangles	Describe the theorem of Pythag. Draw right angled triangles, given info. Write equations to solve for sides.	Bk 1 No 58a (pp. 156 & 157)		
10	Assessment Activity: Consolidate and revise – use SM Activities				

Reflection	
<p>DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:</p> <ul style="list-style-type: none"> • Draw congruent triangles • Prove triangles are congruent • Solve geometric problems. • Apply theory of congruency • Draw congruent figures on graph paper • Describe the theorem of Pythagoras. • Draw right angled triangles, given the info. • Write equations to solve for sides. 	<p>What will you change next time? Why?</p> <p>Struggling Learners Names?</p> <p>HOD:</p> <p>Date:</p>

25 – 29 October 2021

Week 3					
Lesson	ATP content	concepts, skills	DBE workbook	Resources	Date
11	THEOREM OF PYTHAGORAS Use the Theorem of Pythagoras to solve problems involving unknown lengths in geometric figures that contain right-angled triangles	Write equations to solve for sides. Solve for a side using Pythag.	Bk 1 No 58b (pp. 158 & 159)		
12	THEOREM OF PYTHAGORAS Use the Theorem of Pythagoras to solve problems involving unknown lengths in geometric figures that contain right-angled triangles	Find lengths of diagonals of squares. Find length of diagonals of rectangle.	Bk 1 No 59a (pp. 160 & 161)		

13	THEOREM OF PYTHAGORAS Use the Theorem of Pythagoras to solve problems involving unknown lengths in geometric figures that contain right-angled triangles	Find lengths of diagonals of squares. Find length of diagonals of rectangle. Find length of heights of a triangle.	Bk 1 No 59b (pp. 162 & 163)		
14	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of:– polygons – circles	Give the meanings of different formulae. Apply correct formula to calculate perimeter/area.	Bk 1 No 60 (pp. 164 & 165)		
15	Assessment Activity: Consolidate and revise — use SM Activities				
Reflection					
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:		What will you change next time? Why?			
<ul style="list-style-type: none"> • Write equations to solve for sides. • Solve for a side using Pythagoras • Find lengths of diagonals of squares. • Find length of diagonals of rectangle. • Find lengths of diagonals of squares. • Find length of diagonals of rectangle. • Find length of heights of a triangle. • Give the meanings of different formulae. • Apply correct formula to calculate perimeter/area. 		Struggling Learners names:			
		HOD:		Date:	

1 – 5 November 2021

Week 4					
Day	ATP Content	CAPS content, concepts, skills	DBE workbook	Resources	Date
16	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of:– polygons – circles	Describe formula for area of a triangle Calculate areas of triangles with given info	Bk 1 No 61 (pp. 166 & 167)		
17	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of:– polygons – circles	Describe formula for area of parms & trapeziums Calculate areas of parms & trapeziums with given info	Bk 1 No 62 (pp. 168 & 169)		
18	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of:– polygons – circles	Describe formula for area of a rhombus & kite. Calculate areas of rhombi & kites with given info	Bk 1 No 63 (pp. 170 & 171)		
19	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae and conversions between SI units, to solve problems and calculate perimeter and area of:– polygons – circles	Describe formula for area of a circle. Calculate areas of circles with given info	Bk 1 No 64 (pp. 172 & 173)		
20	Assessment Activity: Consolidate and revise – use SM Activities				
Reflection					

<p>DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:</p> <ul style="list-style-type: none"> • Describe formula for area of a triangle • Calculate areas of triangles with given info • Describe formula for area of parms & trapeziums • Calculate areas of parms & trapeziums with given info • Describe formula for area of a rhombus & kite. • Calculate areas of rhombi & kites with given info • Describe formula for area of a circle. • Calculate areas of circles with given info 	<p>What will you change next time? Why?</p> <p>Struggling Learners Names:</p>
	<p>HOD: _____ Date: _____</p>

8 – 12 October 2021

Week 5					
Day	ATP Content	concepts, skills	DBE workbook	Resources	Date
21	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Use appropriate formulae</p> <p>Convert between SI units to solve problems</p> <p>Calculate volume, capacity, and surface areas of cubes</p>	Bk 2 No. 100a (pp. 92 & 93)		
22	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Calculate volume, capacity, and surface areas of different cubes</p>	Bk 2 No. 100b (pp. 94 & 95)		
23	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Use appropriate formulae</p> <p>Convert between SI units to solve problems</p> <p>Calculate volume, capacity, and surface areas of rectangular prisms</p>	Bk 2 No. 101 (pp. 96 & 97)		
24	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Use appropriate formulae</p> <p>Convert between SI units to solve problems</p> <p>Calculate volume, capacity, and surface areas of triangular prisms</p>	Bk 2 No. 103a (pp. 100 & 101)		
25	Assessment Activity: Consolidate and revise – use SM Activities				
Reflection					

<p>DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:</p> <ul style="list-style-type: none"> • Use appropriate formulae • Convert between SI units to solve problems • Calculate volume, capacity, and surface areas of cubes • Calculate volume, capacity, and surface areas of rectangular prisms • Calculate volume, capacity, and surface areas of triangular prisms 	<p>What will you change next time? Why?</p> <p>Struggling Learner names:</p>
	<p>HOD:</p> <p>e:</p> <p style="text-align: right;">Dat</p>

15 – 19 November 2021

Week 6					
Day	ATP Content	concepts, skills	DBE workbook	Resources	Date
26	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Calculate volume, capacity, and surface areas of triangular prisms</p>	<p>Bk 2 No. 103b (pp. 102 & 103)</p>		
27	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Use appropriate formulae</p> <p>Convert between SI units to solve problems</p> <p>Calculate volume, capacity, and surface areas of a cylinder</p>	<p>Bk 2 No. 104a (pp. 102 & 103)</p>		
28	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Calculate volume, capacity, and surface areas of a cylinder</p>	<p>Bk 2 No. 104b (pp. 104)</p>		
29	<p>SURFACE AREA AND VOLUME OF 3 – D OBJECTS</p> <p>Use appropriate formulae and conversions between SI units to solve problems and calculate the surface area, volume and capacity of:</p> <p>– rectangular prisms– triangular prisms– cylinders</p>	<p>Calculate volume, capacity, and surface areas of a cylinder</p>	<p>Bk 2 No. 104b (pp. 105)</p>		
30	Assessment Activity: Consolidate and revise – use SM Activities				
Reflection					

<p>DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:</p> <ul style="list-style-type: none"> • Calculate volume, capacity, and surface areas of triangular prisms • Use appropriate formulae • Convert between SI units to solve problems • Calculate volume, capacity, and surface areas of a cylinder 	<p>What will you change next time? Why?</p> <p>Struggling Learners Names:</p>
	<p>HOD: _____ Date: _____</p>

22 – 26 November 2021

Week 7					
Day	ATP Content	concepts, skills	DBE workbook	Resources	Date
31	Consolidation assessment 1				
32	Remediation				
33	Consolidation assessment 2				
34	Remediation				
35	Consolidation assessment 3 plus remediation				
Reflection					
<p>DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? WHAT ARE THEY ABLE TO MASTER:</p> <ul style="list-style-type: none"> • 			<p>What will you change next time? Why?</p> <p>Struggling Learners Names:</p>		
			<p>HOD: _____ Date: _____</p>		

29 November – 3 December 2021

Week 8					
Day	ATP content	concepts, skills	DBE workbook	Resources	Date
36	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
37	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
38	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				

39	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
40	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
Reflection					
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? WHAT SKILLS ARE THEY ABLE TO MASTER?			What will you change next time? Why?		
			Struggling Learners Names:		
			HOD:		Date:

6 – 10 December 2021

Week 9					
Day	ATP content	concepts, skills	DBE workbook	Resources	Date
41	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
42	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
43	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
44	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
45	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
Reflection					
			What will you change next time? Why?		
			HOD:		Date:

13 – 15 December 2021 (three-day week)

Week 10					
Day	ATP content	concepts, skills	DBE workbook	Resources	Date
46	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
47	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				

48	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
49					
50					
Reflection					
Identify some skills that need revising during the next term in 2022			What will you change next time? Why?		
			Struggling Learners Names:		

ASSESSMENT RATIONALE AND RESOURCES

Assessment Term Plan

The assessment term plan gives an overview of

- 1) how the formal and informal assessment programme fits into the weekly lesson plans.
- 2) How the skills mastery assessments fit into the weekly lesson plans

Note:

- There is ONE FORMAL Assessment tasks: 1) Test.
- The Skills mastery assessments – aimed at consolidating, revising and remediating skills already covered this year - are added at the end of the document.

Written assessment tasks are to be selected and marked by teachers in appropriate lessons according to the lesson plans. Teachers may wish to group the items or use them individually.

Week	Skills Mastery Activities (Tuesdays and Thursdays)	Formative Assessment Activities: Aimed to enhance Revision Programme
1	Baseline Assessment	Baseline Assessment
2	Tuesday Skills mastery Assessment 1 Thursday Skills mastery Assessment 2	
3	Tuesday Skills mastery Assessment 3 Thursday Skills mastery Assessment 4	
4	Tuesday Skills mastery Assessment 5 Thursday Skills mastery Assessment 6	

5	Tuesday Skills mastery Assessment 7 Thursday Skills mastery Assessment 8	
6	Tuesday Skills mastery Assessment 9 Thursday Skills mastery Assessment 10	
7		Lesson 1 and 2 Consolidation Assessment 1 plus Remediation Lesson 3 and 4: Consolidation Assessment 2 plus Remediation Lesson 5 Consolidation Assessment 3 plus Remediation
8		FORMAL ASSESSMENT TASK – Test
9		FORMAL ASSESSMENT TASK – Test
10		FORMAL ASSESSMENT TASK – Test

Exemplar Written Assessment ITEMS with marking memos.

The exemplar items can be used as a diagnostic pre-assessment, but can be used, later in the term, as a post-assessment to monitor learning.

The skills mastery items can be used as a secondary assessment, both to monitor progress in learning skills and mastery of skills. For example, the teacher can select 5 items from the first three Skills Mastery Assessments (a selection from 15 items) and use it for end of week assessments. End-of-week days have been planned for this purpose, as well as for consolidating the learning of the week's content.

- Written assessments are to be done in addition to oral and practical assessment to carry out meaningful continuous assessment throughout the term.
- You need to plan when you will do a written assessment. We suggest you do it at the end-of week.
- The questions provided in the exemplar and Skills Mastery Assessments are taken from past written assessment papers and assessments generally, that were previously in the lesson plans. We suggest you use selected items as smaller written assessment tasks. This aligns better with the curriculum objective of continuous assessment.
- There is one lesson "slot" per week that is assigned for you to catch up or consolidate the lesson plan content covered in the week's lessons. This lesson should also be used for the purpose of carrying out written assessment tasks or to complete oral or practical tasks for that week.

ITEM BANK FOR BASELINE: EXEMPLAR

It is recommended that teachers divide this diagnostic exemplar into two parts because of the time duration. The second part can be done as an assessment at the end-of-week slot. Additionally, teachers should only include the topics that learners have completed.

INSTRUCTIONS TO LEARNERS:

1. There are a few questions. Some have been deleted, hence the different numbering sequence. Answer all questions.
2. Show all your calculations where necessary.
3. Scientific non-programmable calculators may be used. Round off to two decimal places.
4. Squared paper is provided for graphs.
5. Diagrams are not drawn to scale.

QUESTION 1:

1.1 Given the numbers: $-3; \sqrt{-9}; \frac{3}{0}; 6,457; -17; \sqrt[3]{64}$

Choose the numbers from the above list which are:

- 1.1.1 rational (2)
- 1.1.2 non-real (1)

[4]

QUESTION 2:

2.1 There are 47 children who are going on a holiday outing. Of these children, 17 choose to go ice-skating while the rest of the children choose to go to the movies.

- 2.1.1 What fraction of the children is going ice-skating? (1)
- 2.1.2 What percentage of the children is going to the movies? (2)

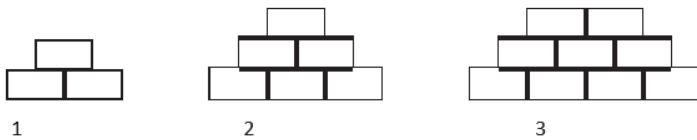
2.2 A retail outlet has a clothing sale. Thabang buys a jacket for R450, which is a saving of R175 on the normal price. Calculate the marked down percentage on the jacket. (2)

QUESTION 3:

3.1 Find the next term of each of the following number patterns:

- 3.1.1 $-17; -12; -7; \dots$ (1)
- 3.1.2 $3; \frac{3}{4}; \frac{3}{16}; \dots$ (1)

3.2 David is building a wall. He starts off with three bricks, then continues to build the number to six, then to ten, and so on, as in the structures below.



- 3.2.1 Following this pattern, how many bricks will the next two structures consist of? (3)
- 3.2.2 The base (bottom row) of the wall needs two bricks for the first structure, then three for the second structure, four for the third etc. How many bricks will be needed for the n -th structure? (2)
- 3.2.3 How many rows of bricks will be needed for the twentieth structure? (2)

QUESTION 4:

Simplify:

- 4.1 $\frac{3x^2(2x)^{-1}}{12x^{-4}z^0}$ (3)
- 4.2 $m - 5(m - 1)(m + 6) - 3(m - 6)^2$ (3)
- 4.3 $\frac{-8x^4 - 3x^2 + 21x}{-3x}$ (3)
- 4.4 $\sqrt{625y^6}$ (1)
- 4.5 $\frac{25a^2 - 9}{3 + 5a}$ (2)

[12]

QUESTION 6:

6.1 Solve for the unknown variable:

6.1.1 $5(2x - 3) = 6(7x - 4) + 25$ (3)

6.1.2 $\frac{2x-3}{10} - \frac{x+1}{3} = \frac{3x-1}{5}$ (4)

6.1.3 $y^2 + 7y = -10$ (3)

6.1.4 $0 = 24f^2 - 12f$ (3)

6.1.5 $2^k = 32$ (1)

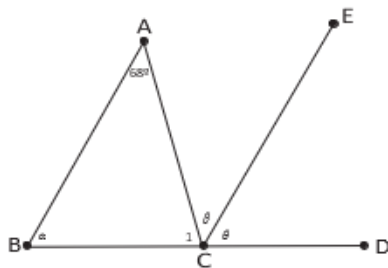
6.1.6 $4.2^p - 2 = 510$ (3)

[17]

QUESTION 10: (Reasons must be provided where necessary)

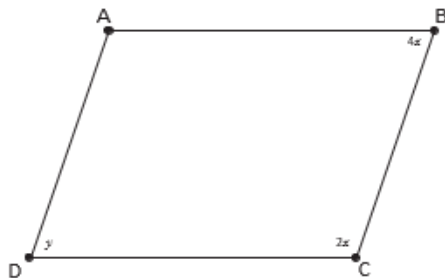
10.1 BCD is a straight line. $\triangle ABC$ is an isosceles triangle. $\angle A = 68^\circ$. AB is parallel to EC.

Determine the values of α , β and θ .



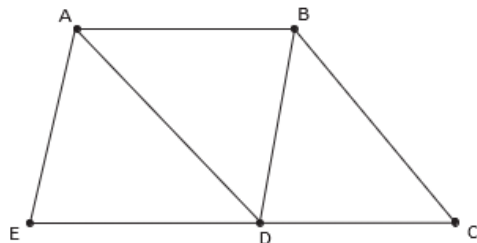
(5)

10.2 ABCD is a parallelogram. Calculate the values of x and y .



(3)

10.3 In the figure below, ABCD is a rhombus and ABDE is a rhombus. Prove that $\triangle ADE \cong \triangle BDC$.



(3)

[11]

SOLUTIONS AND MEMORANDUM: WITH COGNITIVE LEVELS

Note: The last column in the memorandum shows the cognitive level for each question in the test.

The levels are:

K: Knowledge – straight recall of facts

RP: Routine Procedures – well-known, simple applications and calculations

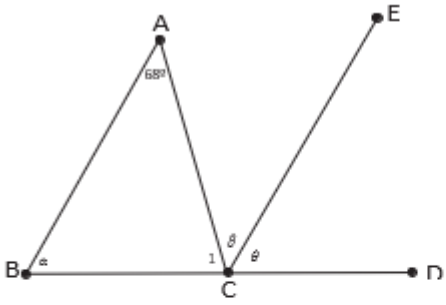
CP: Complex Procedures – procedures involving complex calculations and/or higher reasoning

PS: Problem Solving – solving problems for which higher order reasoning and processes are involved

More information about these levels can be found in the CAPS (p. 157).

SOLUTIONS	MARKS	COGNITIVE LEVELS
QUESTION 1:		
1.1.1 Rational: $-3; 6,457; \sqrt[3]{64}$ ✓ ✓ <i>one mark if two choices are correct</i>	(2)	K
1.1.2 Non-real: -9 ✓ <i>answer</i>	(1)	K
QUESTION 2:		
2.1.1 $\frac{17}{47}$ of the children are going ice-skating. ✓ <i>ratio</i>	(1)	RP
2.1.2 $\frac{30}{47} \times 100 = 63,83\%$ are going to the movies ✓ ✓ <i>answer</i>	(2)	RP
2.2 $450 + 175 = 625$ ✓ <i>calculation</i> $\frac{175}{625} \times 100 = 28\%$ ✓ <i>final answer</i>	(2)	PS

<p>QUESTION 3:</p> <p>3.1.1 -2 ✓ <i>answer</i></p> <p>3.1.2 $\frac{6}{34}$ ✓ <i>answer</i></p> <p>3.2.1 15; 21; 28 ✓ ✓ ✓ <i>two marks for first answer; three for both correct</i></p> <p>3.2.2 2; 3; 4; ... The nth term = $n + 1$ bricks ✓ ✓ <i>formula</i></p> <p>3.2.3 The 20th term = $20 + 1 = 21$ bricks ✓ ✓ <i>answer</i></p>	<p>(1)</p> <p>(1)</p> <p>(3)</p> <p>(2)</p> <p>(2)</p>	<p>RP</p> <p>RP</p> <p>RP</p> <p>PS</p> <p>RP</p>
<p>QUESTION 4: ✓ <i>simplification</i></p> <p>4.1 $\frac{3x^4(2x)^{-1}}{12x^4x^0} = \frac{3x^4x^4}{12(2x).1} = \frac{x^4}{8x}$ ✓ ✓ ✓ <i>final answer</i></p> <p>4.2 $m - 5(m-1)(m+6) - 3(m-6)^2$ $= m - 5(m^2 + 5m - 6) - 3(m^2 - 12m + 36)$ ✓ ✓ <i>simplification</i> $= m - 5m^2 - 25m + 30 - 3m^2 + 36m - 108$ $= -8m^2 + 12m - 78$ ✓ <i>final answer</i></p> <p>4.3 $\frac{-8x^4 - 3x^2 + 21x}{-3x} = \frac{-8x^4}{-3x} - \frac{3x^2}{-3x} + \frac{21x}{-3x}$ ✓ ✓ <i>split denominators</i> $= \frac{8x^3}{3} + x - 7$ ✓ <i>final answer</i></p> <p>4.4 $625y^6 = 25y^3$ ✓ <i>answer</i></p> <p>4.5 $\frac{15a^2 - 9}{3 + 5a} = \frac{(5a-3)(5a+3)}{5a+3}$ ✓ <i>simplification</i> $= 5a - 3$ ✓ <i>answer</i></p>	<p>(3)</p> <p>(3)</p> <p>(3)</p> <p>(1)</p> <p>(2)</p>	<p>RP</p> <p>RP</p> <p>CP</p> <p>RP</p> <p>RP</p>
<p>QUESTION 6:</p> <p>6.1.1 $5(2x - 3) = 6(7x - 4) + 25$ $10x - 15 = 42x - 24 + 25$ ✓ <i>simplification</i> $10x - 42x = 1 + 15$ $-32x = 16$ ✓ <i>simplification</i> $x = \frac{16}{-32}$ $x = -\frac{1}{2}$ ✓ <i>final answer</i> $(x = \frac{-16}{32} \text{ is acceptable})$</p> <p>6.1.2 $\frac{2x-3}{10} - \frac{x+1}{3} = \frac{3x-1}{5}$ $\frac{3(2x-3) - 10(x+1)}{30} = \frac{6(3x-1)}{30}$ ✓ ✓ <i>numerator & denominator</i> $\therefore 6x - 9 - 10x - 10 = 18x - 6$ ✓ <i>simplification</i> $-4x - 18x = -6 + 19$ $-22x = 13$ $x = -\frac{13}{22}$ ✓ <i>final answer</i></p>	<p>(3)</p> <p>(4)</p>	<p>RP</p> <p>CP</p>

SOLUTIONS	MARKS	COGNITIVE LEVELS
6.1.3 $y^2 + 7y = -10$ $y^2 + 7y + 10 = 0$ ✓ <i>factors</i> $(y + 5)(y + 2) = 0$ $y = -5$ or $y = -2$ ✓ ✓ <i>answers</i>	(3)	RP
6.1.4 $0 = 24f^2 - 12f$ $0 = 12f(2f - 1)$ ✓ <i>factors</i> $f = 0$ or $2f - 1 = 0$ <i>answer</i> $f = \frac{1}{2}$ ✓ <i>answer</i>	(3)	RP
6.1.5 $2^k = 32$ $2^k = 2^5$ $k = 5$ ✓ <i>answer</i>	(1)	RP
6.1.6 $4.2^p - 2 = 510$ $4.2^p = 510 + 2$ $4.2^p = 512$ ✓ <i>simplification</i> $2^p = \frac{512}{4}$ $2^p = 128$ ✓ <i>simplification</i> $2^p = 2^7$ $\therefore p = 7$ ✓ <i>answer</i>	(3)	CP
QUESTION 10: 		
10.1 $\alpha + C_1 = 180^\circ - 68^\circ$ (sum of angles of Δ) ✓ <i>statement and reason (s&r)</i> $= 112^\circ$ ✓ <i>answer</i> But $AB = AC$ (given) $\therefore B = C_1$ (\angle 's opp. = sides) $\therefore \alpha = C_1 = \frac{1}{2} \times 112^\circ = 56^\circ$ ✓ <i>answer</i> $\theta = 56^\circ$ (BA//CE; <u>corresp.</u> \angle 's) ✓ (s&r) $\beta = 68^\circ$ (BA//CE; alt. \angle 's) ✓ (s&r)	(5)	RP

SOLUTIONS	MARKS	COGNITIVE LEVELS
<p>10.2 $4x + 2x = 180^\circ$ (AB//DC; co-int.<'s) ✓ (s&r)</p> <p>$6x = 180^\circ$</p> <p>$x = \frac{180^\circ}{6} = 30^\circ$ ✓ <i>answer</i></p> <p>$\therefore 4x = 4(30^\circ) = 120^\circ$</p> <p>$y = 120^\circ$ (opp. <'s of parallelogram) ✓ (s&r)</p>	(3)	RP
<p>10.3 AB=BD=ED=AE (opp. sides rhombus ABDE)</p> <p>AB=BC=DC=AD (opp. sides rhombus ABCD)</p> <p>\therefore AB=BD=ED=AE=BC=DC=AD ✓ <i>conclusion</i></p> <p>In $\triangle ADE$, $\triangle BDC$:</p> <p>1) AE=BD (proved)</p> <p>2) AD=BC (proved) ✓ <i>statements</i></p> <p>3) ED=DC (proved)</p> <p>$\therefore \triangle ADE \cong \triangle BDC$ (side, side, side) ✓ (s&r)</p>	(3)	CP

SKILLS MASTERY ASSESSMENTS

Rationale

- A Skills Mastery Assessment (SMA) is one in which there is an iterative revisiting of skills, topics, subjects or themes throughout the year.
- SMA is not simply the repetition of a topic taught. It requires the deepening of it, with each successive encounter building on the previous one.
- SMA is critical in today's educational environment, especially in mathematics, where we must consistently give our learners the opportunity to revisit and practice skills they have already learned aimed at mastery.
- The traditional practice is to incorporate consolidating, revising or reviewing, through homework, morning work, small group instruction, and even after school math classes. Through SMA we are going to continuously review skills and concepts with our students.
- It makes sense that we would continue to assess their understanding on those same skills by changing the context of the question using C-P-A-W (Concrete – Pictorial – Abstract -Worded)
- When we first teach and assess a skill, many of our students have yet to master it. By incorporating a SMA activity into your classroom, you are providing your students with the opportunity to demonstrate their growth and understanding on a regular basis.
- These regular SMAs help you see where your students are always struggling. You can use the results to guide your small group instruction and customize your lessons and activities to meet the needs of your students, not just the covering of curriculum.

Implementation

- In every lesson plan there are 10 minutes set aside for consolidation and revision, meaning one could apply SMA every day for 10 minutes, before teaching a new concept for that day.
- Each SMA is using a five-item design to ensure teachers can complete it in 10 minutes.
- As a minimum, this Planner and Tracker, recommends the use of Tuesdays and Fridays, but teachers could use every day.
- Each Tuesday and Thursday you are encouraged to take 10 minutes and give a SMA to the whole class, or groups. Learners should be able to take about 5 minutes to complete – then the teacher must remediate by addressing errors, misconceptions and misunderstandings.
- Teachers could also use the data from the SMA to help plan small group lessons for the next week.
- Teachers could also pull different students for different skills until the teacher felt confident that the learners were more confident in their responses. Then next week, repeat....new set of SMAs, similar skills being assessed, new data for small group instruction.
- These daily SMAs should be seen as a progress monitoring tool as well. This will prove to be effective in letting teachers know how their most struggling students are progressing.

SKILLS MASTERY (SM) EXEMPLARS

In these 5-item Skills Mastery Assessments, teachers are encouraged to delete those items not applicable for their purpose and items that refer to content that was dropped for 2021.

Skills Mastery (SM) Assessment 1

- | Number | Assessment |
|--------|--|
| 1. | When $\frac{12m^2n - 6mn^2}{3mn}$ is simplified, the answer is:

A $4m - 2n$

B $2m^2n^2$

C $\frac{2m - n}{3}$

D $\frac{2m}{-n}$ |
| 2. | Find the product of the following:

$3x(2x^2 - 5x - 4)$ |
| 3. | Factorise the following completely:

$4x(a - b) + 3(b - a)$ |

4. Solve for x :

$$\frac{3x - 1}{2} - \frac{2x}{3} = 2$$

5. Write down the next term in the given sequence:

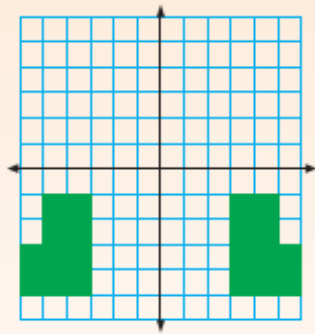
3 ; 8 ; 13 ; ...

SM Assessment 2

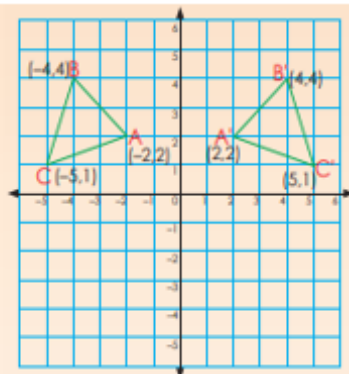
Number Assessment

1. Describe the transformations. Remember to label your diagrams and axes.

a.

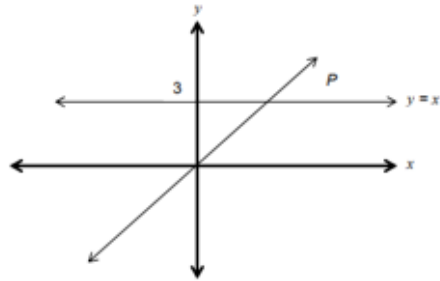


2.



Write down the coordinates of the geometric figures.

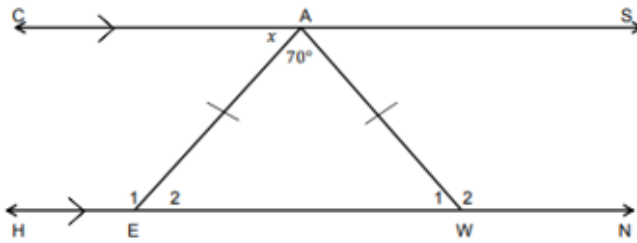
4.



What are the co-ordinates of P (the intersection of the two graphs)?

5.

In the figure below, $CS \parallel HN$, $\angle EAW = 70^\circ$, $AE = AW$ and $\angle CAE = x$.

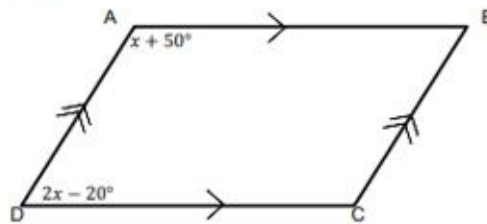


Give a reason why $\hat{E}_2 = x$.

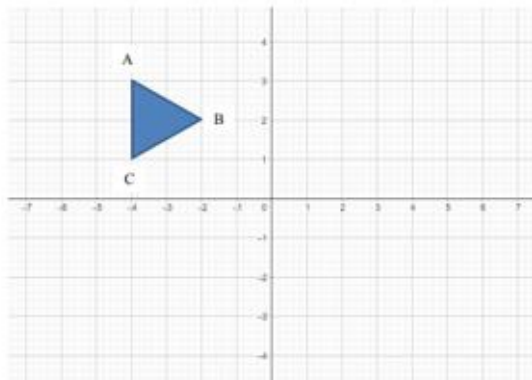
SM Assessment 3

Number Assessment

1. $ABCD$ is a parallelogram. Calculate the size of \hat{B} .



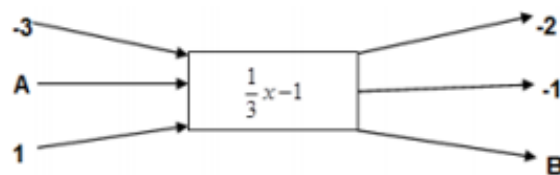
2. Study the diagram below.



Using the ANNEXURE, reflect the object about the y-axis from the diagram above.

3. Read the flow diagram below and answer the questions that follow:

Input values x
Output values y



4. Use the table below to answer the questions that follow:

x	-1	0	1	2	m
y	-5	-3	-1	1	21

Determine the value of m .

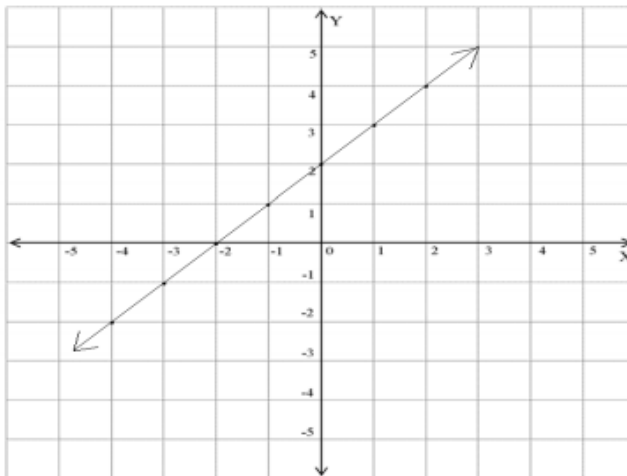
SM Assessment 4

Number Assessment

1. Which ONE of the following numbers is irrational?

- A $3.\dot{7}$
- B $\sqrt[3]{-27}$
- C $-\sqrt{3}$
- D $\sqrt{1\frac{7}{9}}$

2. The equation of the straight line drawn below is:



- A $y = 2x - 2$
- B $y = x + 2$
- C $y = -2x + 2$
- D $y = -x - 2$

3. If $x(2x - 8) = 0$, then x is:

- A 0 or 4
- B 0 or -4
- C 2 or -2
- D None of the above

4. Simplify:

$$3z^2 - \left(4\frac{2}{3}z^3 \div \frac{7z}{2} \right)$$

5. Factorise completely:

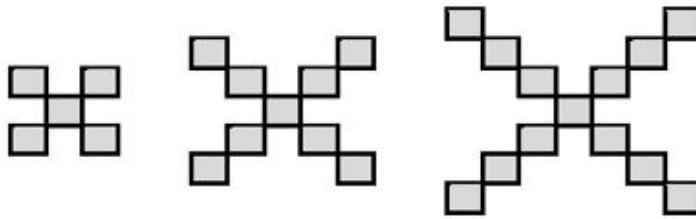
$$ax^2 - 5ax + 6a$$

SM Assessment 5

Number
1.

Assessment

Consider the following shapes and answer the questions that follow.



Shape 1

Shape 2

Shape 3

Refer to the table below and write down the values of q and r .

Shape	1	2	3	4	...	r
Number of rectangles	5	9	13	q	...	101

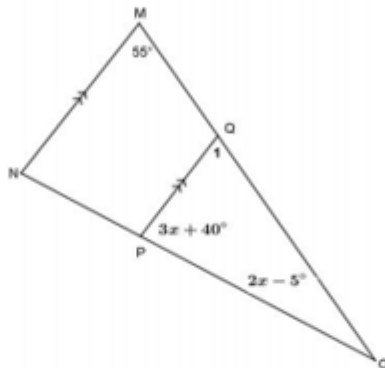
Determine the general rule (T_n) of the pattern.

2.

A playground is in the form of a rectangle with the length 1 m longer than the breadth. A new rectangular playground is planned that will be 3 m longer than the original length and with a breadth 1 m shorter than that of the original breadth. Determine the difference in perimeter of the two playgrounds.

3.

In the diagram below is $\triangle MNO$ with $MN \parallel QP$, $\angle OMN = 55^\circ$, $\angle QPO = 3x + 40^\circ$ and $\angle MON = 2x - 5^\circ$.



Calculate the value of x . Give reasons for your answer.

4.

Calculate the value of a , b and c in the table.

5.

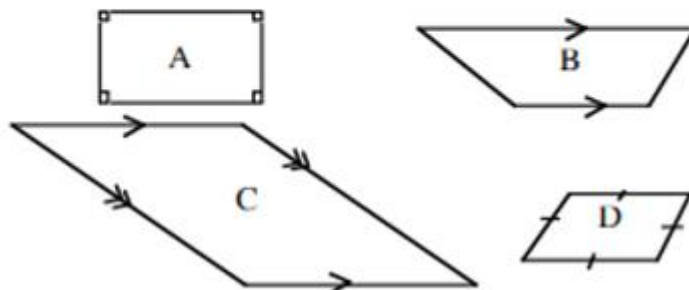
All the Grade 9 learners of a school were asked whether they had cellphones or not. If they had one, they also had to indicate whether they had it on a contract, with the phone being paid for by the parent/guardian or whether it was pre-paid. Their responses are shown in the table below:

	Contract	Pre-paid	No cellphone	Total
Boys	a	57	24	100
Girls	23	b	37	150
Total	42	147	c	250

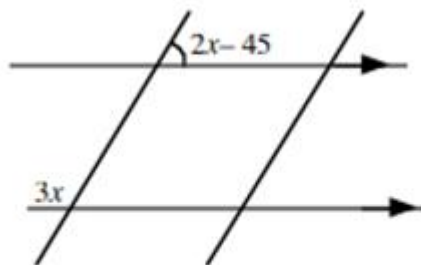
SM ASSESSMENT 6

Number Assessment

1. Which of the following figures is not a parallelogram?



2. What is the value of x ?



- A. 30° B. 45°
 C. 90° D. 180°
3. In the expression $4x^2yz^3 + 2xyz^2$,
 What is the highest common factor?
 A. $4x^2yz^3$ B. $2xyz^2$
 C. $8x^3y^2z^5$ D. $8xyz$

4. $x = 5$ and $y = 6$. What is $5y + 2(6x)$
5. A car uses 10 litres of petrol to travel 25 km.
 Calculate the amount of petrol in litres needed to travel 100 km.

SM ASSESSMENT 7

Number Assessment

1. John, Maria and Kiri shared some mangoes in the ratio. 4: 2: 1 respectively.

What fraction of mangoes does Kiri receive?

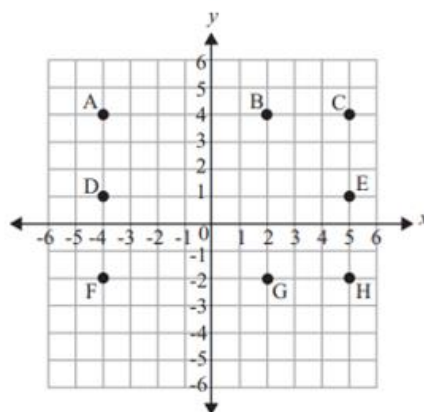
- A. $\frac{1}{7}$ B. $\frac{2}{7}$
 C. $\frac{1}{3}$ D. $\frac{4}{7}$

2. What is the equation used for the table below.

x	4	3	2	1	0	-1
y	5	3	1	-1	-3	-5

- A. $y = 2x - 3$ B. $y = 2 - 3x$
 C. $y = 2 + 3x$ D. $y = 2x + 3$

3. Use the coordinate grid below to answer the question.



Which four points would be the vertices of a square?

- A. points A, B, G, F
 B. points A, C, E, D
 C. points B, C, H, G
 D. points A, C, H, F
4. The sum of a number, n , and 5 is subtracted from 8. Which expression represents this statement?

SM ASSESSMENT 8

Number Assessment


1. 1. Determine the tenth and n^{th} terms using a table and number sentence.

a. n^{th} term is:

n (Position in sequence)	1	2	3	4	10	n
Value of term	13	23	33	43		

2. Give the next three terms

$2^{\circ}, 3^{\circ}, 4^{\circ}, 5^{\circ}, \dots$
 $\sqrt{4}, \sqrt{9}, \sqrt{16}, \sqrt{25}, \dots$
 $2^{\circ}, 3^{\circ}, 4^{\circ}, 5^{\circ}, \dots$
 $\sqrt[3]{8}, \sqrt[3]{27}, \sqrt[3]{64}, \sqrt[3]{125}, \dots$



3. $5(x - y)$ for $x = 10$ and $y = 8$

4.

Expression	Number of Terms	Variable(s)	Coefficient(s)	Constant(s)	Type of Polynomial
$3x^2 + 5x - 7$					

5. Divide.

a. $\frac{5x^2 - 10x}{5x}$

SM Assessment 9

Number Assessment

1. What is the correct pair of values of x in $(x - 3)(x + 2) = 0$?

A $x = -3$ and $x = -2$

B $x = 3$ and $x = -2$

C $x = -3$ and $x = 2$

D $x = 3$ and $x = 2$

2. Which of the following statements is true about a kite?

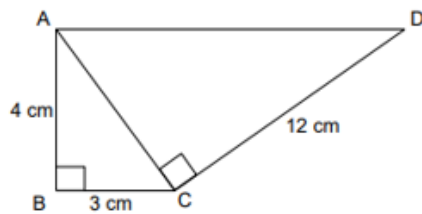
A The longer diagonal bisects the shorter diagonal at 90° .

B The shorter diagonal bisects the longer diagonal at 90° .

C Diagonals bisect each other.

D Diagonals are equal.

3. What is the length of AD in the figure below?



A 16 cm

B 15 cm

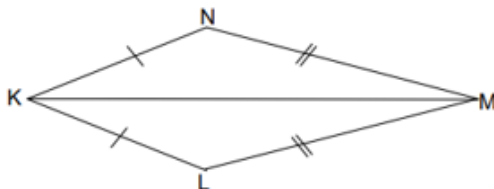
C 13 cm

D 5 cm

4. Solve for x :

$$\frac{3x - 10}{2} = \frac{2x - 5}{3}$$

5. In the diagram below, prove that $\triangle KLM \cong \triangle KNM$.



SM Assessment 10

Number Assessment

3. Consider the following table:

x	-2	-1	0	1	2	5	b
y	15	8	1	-6	-13	a	-62

Write the relationship in algebraic form

$y = \dots$

4. Simplify by using factors:

$$\frac{a^2 + 2a - 15}{2a - 6}$$

5. Simplify:

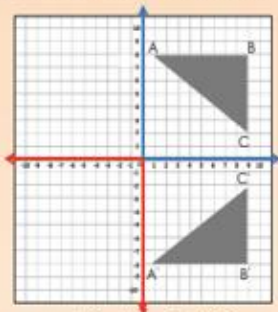
$$-5(a^2 - a) - (a - 4)$$

SM Assessment 11

Number Assessment

1.

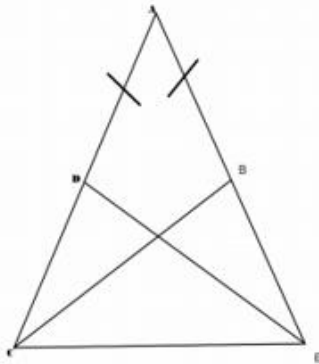
Describe each reflection.



The co-ordinates of ABC are:

2.

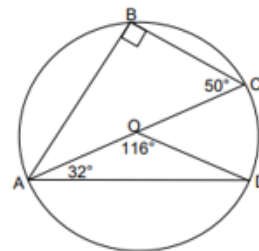
In the figure, $AD = AB$ and $CD = BE$. Prove that $\triangle ABC = \triangle ADE$.



4.

Calculate the size of \hat{CAB} . Give a reason for your answer.

In the figure below, O is the centre of the circle.



5.

If $(x - 1)(x + 2) = 0$ then $x = \dots$

- A -1 or 0
- B 1 or -2
- C 1
- D -2

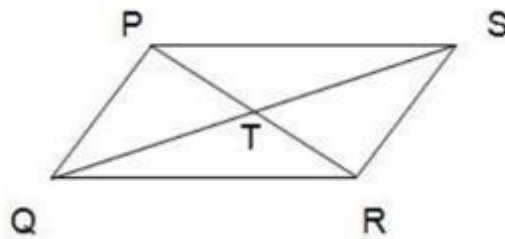
SM Assessment 12

Number Assessment

1. How many terms are there in the expression: $\frac{-x^2 - x + 2}{x - 1} \times \frac{3}{x - 2}$?

- A 4
- B 1
- C 8
- D 2

2. In $PQRS$ below, PR intersects with QS at T , such that $PT = TR$ and $QT = TS$, then $PQRS$ is a ...



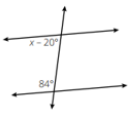
- A rectangle
- B parallelogram
- C kite
- D rhombus

5. Write the next term in the number pattern: 4; 7; 10; ...

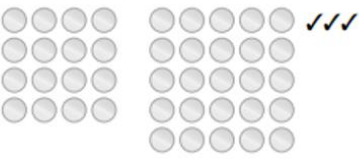
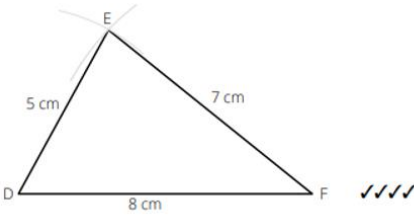
CONSOLIDATION (REVISION) ASSESSMENTS FOR END OF TERM

ASSESSMENT 1

<p>1. Simplify the expressions.</p> $-x(3x - 4)$ $7 - 2(x + 5)$ <p style="text-align: right;">(2) (2)</p>	<p>11. Draw the next two diagrams for the pattern in the diagram. (3)</p>
<p>2. Simplify the expressions.</p> $\frac{3}{x^2-2} + \frac{4}{x+5}$ <p style="text-align: right;">(4)</p>	<p>12. Simplify.</p> $ab \times c + (a + b)c$ <p style="text-align: right;">(2)</p>
<p>3. Factorise completely.</p> $y^2 - 25$ $16 - x^2$ <p style="text-align: right;">(2) (2)</p>	<p>13. Solve for x.</p> $\frac{21}{x} = 3$ <p style="text-align: right;">(2)</p>
<p>4. Find, giving reasons, the values of:</p> <p>1.1 x (3)</p>	<p>14. Given: $-4; -7; -10; -13; \dots$ Write down the next two terms. (2)</p>
<p>5. In quadrilateral ABCD, $AB \parallel DC$ and $AB = DC$.</p> <p>1.1 Prove that $\triangle ABD = \triangle CDB$. (4)</p>	<p>15. Construct DEF with $DE = 5$ cm, $EF = 7$ cm and $DF = 8$ cm. (4)</p>
<p>6. In the diagram, $XN = YN$, $BN = NC$, $NX \perp AB$ and $NY \perp AC$.</p> <p>3.1 Prove $AB = AC$. (4)</p>	<p>16. How many triangles can you construct from this information? (1)</p>
<p>7. Given the information: $3; \sqrt{16}; 64; \frac{5}{2}; -5; 4; 5$. Write down: a prime number (2)</p>	
<p>8. Classify each number as fraction, an integer, mixed number or a decimal number. -2 (2)</p>	<p>18. Find the values of the unknowns in the diagram (give reasons for your answers). (4)</p>

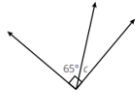
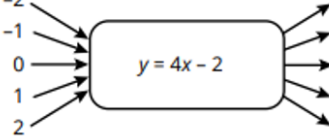
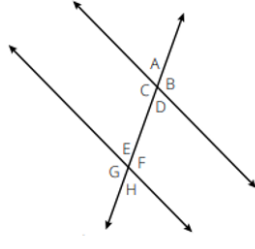
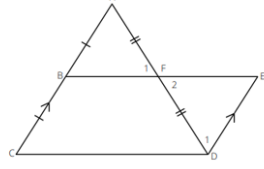
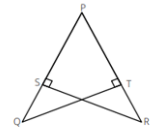
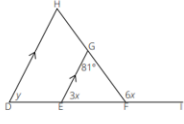
9.	Find the HCF and LCM of 9 and 24 by prime factorisation. (5)	
10.	Calculate, without the use of a calculator: $-5 + 4 - 23$. (2)	20. Determine the value of x in the diagram. (3) 

MEMORANDUM

1.	$-x(3x - 4) = -3x^2 + 4x \checkmark\checkmark$ $7 - 2(x + 5) = 7 - 2x - 10 = -2x - 3 \checkmark\checkmark$	11. 
2.	$\frac{3}{x-2} + \frac{4}{x+5}$ $= \frac{3(x+5) + 4(x-2)}{(x-2)(x+5)} \checkmark$ $= \frac{3x+15+4x-8}{(x-2)(x+5)} \checkmark$ $= \frac{7x+7}{(x-2)(x+5)} \checkmark$ $= \frac{7(x+1)}{(x-2)(x+5)} \checkmark$	12. $ab \times c + (a + b)c = abc + ac + bc \checkmark\checkmark$
3.	$y^2 - 25 = (y + 5)(y - 5) \checkmark\checkmark$ $16 - x^2 = (4 - x)(4 + x) \checkmark\checkmark$	13. $\frac{21}{x} = 3$ $3x = 21 \checkmark$ $x = 7 \checkmark$
4.	$3x = x + 42^\circ$ (alternate angles, $AB \parallel DC$) \checkmark $2x = 42^\circ \checkmark$ $x = 21^\circ \checkmark$	14. $-4; -7; -10; -13; -16; -19 \checkmark\checkmark$
5.	$AB = CD$ (given) \checkmark $\hat{B}_1 = \hat{D}_2$ (alternate angles, $AB \parallel DC$) \checkmark $BD = BD$ (common) \checkmark $\therefore \triangle ABD = \triangle CDB$ (S, A, S) \checkmark	15. 
6.	$XN = YN$ (given) \checkmark $BN = CN$ (given) \checkmark $\hat{X}_1 = \hat{Y}_2$ (given) \checkmark $\triangle XNB \equiv \triangle YNC$ (RHS) $\hat{B}_1 = \hat{C}_2$ (congruence) \checkmark $\therefore AB = AC$ (angles opposite equal sides)	16. Only one triangle.

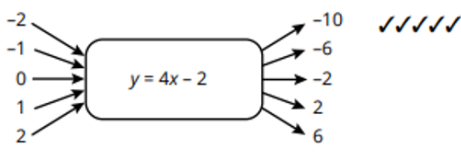
7.	3 or 5 ✓✓		
8.	integer ✓✓	18.	$x = 10^\circ + 32^\circ + 56^\circ$ (exterior angle of Δ) ✓ $x = 98^\circ$ ✓ $x = 32^\circ + 56^\circ$ (exterior angle of Δ) ✓ $x = 88^\circ$ ✓
9.	$\begin{array}{r} 3 \ 9 \qquad 2 \ 2 \ 4 \\ 3 \ 3 \qquad 2 \ 1 \ 2 \\ \hline 1 \qquad 2 \ 6 \\ \hline \qquad 3 \ 3 \\ \hline \qquad \qquad 1 \end{array}$ <p> $9 = 3 \times 3$ ✓ and $24 = 2 \times 2 \times 2 \times 3$ ✓ LCM = $3 \times 3 \times 2 \times 2 \times 2 = 72$ ✓✓ HCF = 3 ✓ </p>		
10.	$-5 + 4 - 23 = -24$ ✓✓	20.	$x - 20^\circ + 84^\circ = 180^\circ$ (co-interior angles, parallel lines) $x = 180^\circ - 64^\circ$ $= 116^\circ$ ✓✓✓

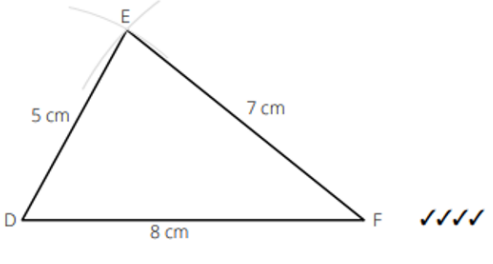
ASSESSMENT 2

<p>1. Write down the formula for the area of a square. (1)</p>	<p>11. Simplify the following as far as possible: $\frac{24x^4}{8x^6}$. (3)</p>
<p>2. Name two properties of a parallelogram. (2)</p>	<p>12. Calculate, without the use of a calculator: $-45 \div (-5) - 6 + 4$. (2)</p>
<p>3. Determine the value of c in the diagram. (2)</p> 	<p>13. Classify each number as fraction, an integer, mixed number or a decimal number. (2)</p> <p>$\frac{24}{27}$</p>
<p>4. </p>	<p>14. Given the information: 3; $\sqrt{16}$; 64; $\frac{5}{2}$; -5; 4; 5. Write down: (2)</p> <p>an irrational number.</p>
<p>6. Name the relationship between the angles in each pair. (1)</p>  <p>\hat{C} and \hat{E}</p>	<p>15. Use the following diagram to prove: (4)</p>  <p>4.1 $\triangle AFB \cong \triangle DFE$</p>
<p>7. Construct DEF with $DE = 5$ cm, $EF = 7$ cm and $DF = 8$ cm. (4)</p>	<p>16. In the diagram, $PS = PT$, $QT \perp PR$ and $RS \perp PQ$. (6)</p>  <p>2.1 Prove that $\triangle PQT \cong \triangle PRS$.</p>
<p>17. Determine the value of: (2)</p>  <p>2.1 x</p>	

8.	Given: $-4; -7; -10; -13; \dots$ Determine the rule (formula) to describe the general term, T_n . (3)	18.	Factorise completely. $4d^3 - 9e^2$ $a^4 - b^4$ (2) (3)
9.	Solve for x . $15 - 2x = 9x - 7$ (3)	19.	Simplify the expressions. $\frac{a^2 - b^2}{5a - 5b}$ (3)
10.	Simplify. $a \times 2b + 3a \times (-2b) - (-2a) \times (-2b)$ (2)	20.	Simplify the expressions. $(3x - 4)(-2x)$ $-2x - (3x - 7)$ (2) (2)

MEMORANDUM

1.	$A = s \times s$ or s^2 ✓	11.	$\frac{24x^4}{8x^6}$ $= 3x^{4-6}$ ✓ $= 3x^{-2}$ ✓ $= \frac{3}{x^2}$ ✓
2.	The opposite angles are equal ✓ The diagonals bisect each other ✓ The opposite sides are equal ✓ The opposite sides are parallel ✓ (any two answers)	12.	$-45 \div (-5) - 6 + 4 = 9 - 6 + 4 = 7$ ✓✓
3.	$65^\circ + c = 90^\circ$ ✓ $c = 25^\circ$ ✓	13.	fraction ✓✓
4.		14.	There is no irrational number in the list. ✓✓ (2)
		15.	$AF = FD$ (given) ✓ $\hat{A} = \hat{D}_1$ (alternate angles, $AB \parallel ED$) ✓ $\hat{F}_1 = \hat{F}_2$ (vertically opposite angles) ✓ $\therefore \triangle AFB \cong \triangle DFE$ (A, A, S) ✓

6.	corresponding angles ✓	16.	<p>In $\triangle PSR$ and $\triangle PTQ$:</p> <p>$P = P$ (common) ✓</p> <p>$S = T$ (given) ✓</p> <p>$PS = PT$ (given) ✓</p> <p>$\triangle PSR \equiv \triangle PTS$ (A, A, S)</p> <p>$\therefore R = Q$ ✓</p> <p>In $\triangle PQT$ and $\triangle PRS$:</p> <p>$PS = PT$ (given)</p> <p>$\hat{S}_1 = \hat{T}_2$ (given)</p> <p>$\hat{R}_1 = \hat{Q}_2$, since $\triangle PSR \equiv \triangle PTS$ ✓</p> <p>$\therefore \triangle PQT \equiv \triangle PRS$ (A, A, S) ✓</p>
7.		17.	<p>$3x + 81^\circ = 6x$ (ext. angle of \triangle) ✓</p> <p>$3x = 81^\circ$</p> <p>$x = 27^\circ$ ✓</p>
8.	<p>$T_n = an + b$</p> <p>$T_n = -3n + b$</p> <p>If $n = 1$; $T_n = -4$ ✓</p> <p>$-4 = -3 + b$</p> <p>$b = -1$ ✓</p> <p>$T_n = -3n - 1$ ✓</p>	18.	<p>$4d^2 - 9e^2 = (2d + 3e)(2d - 3e)$ ✓✓</p> <p>$a^4 - b^4 = (a^2 + b^2)(a^2 - b^2)$ ✓</p> <p>$= (a^2 + b^2)(a + b)(a - b)$ ✓✓</p>
9.	<p>$15 - 2x = 9x - 7$</p> <p>$-2x - 9x = -7 - 15$ ✓</p> <p>$-11x = -22$ ✓</p> <p>$x = 2$ ✓</p>	19.	<p>$\frac{a^2 - b^2}{5a - 5b}$</p> <p>$\frac{(a+b)(a-b)}{5(a-b)}$ ✓✓</p> <p>$\frac{(a+b)}{5}$ ✓</p>
10.	<p>$a \times 2b + 3a \times (-2b) - (-2a) \times (-2b)$</p> <p>$= 2ab - 6ab - 4ab$ ✓</p> <p>$= -8ab$ ✓</p>	20.	<p>$(3x - 4)(-2x) = -6x^2 + 8x$ ✓✓</p> <p>$-2x - (3x - 7) = -2x - 3x + 7 = -5x + 7$ ✓✓</p>